

## **REMARKS**

In the Office Action dated March 8, 2006, claims 1 and 2 were rejected under 35 U.S.C. §103(a) as being unpatentable over Horner et al. in view of Kuniya. Claims 3-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Horner et al and Kuniya et al, further in view of Petter et al.

These rejections are respectfully traversed for the following reasons. The Examiner that the Horner et al reference teaches the use of fiber-reinforced material of the type set forth in claim 1 of the present application in a rotating anode. Such material has fibers oriented in a particular direction, with the coefficient of thermal expansion of the fiber-reinforced material being directionally dependent on the preferred orientation of the fibers. The Examiner noted that the Horner et al reference teaches alignment of the fibers, but the Examiner relied on the Kuniya et al reference as teaching that it is known in the art to manipulate thermal expansion of a fiber-reinforced material. The Examiner stated it would have been obvious to a person of ordinary skill in the relevant technology to modify the device disclosed in the Horner et al reference in accordance with the teachings of Kuniya et al, in order to manipulate any or all of the constituents in the primary reference. The Examiner stated such a modification would be motivated by a desire to produce articles of desired properties.

Applicant respectfully submits that both the Horner et al and Kuniya et al references provide only general statements regarding manipulation of properties of the respective components disclosed therein, but do not describe how such manipulations can or should occur, and neither reference discloses or suggests the goal of such a manipulation that is set forth in claim 1, namely causing the coefficient

of thermal expansion of the fiber-reinforced material to be substantially equal, in a boundary region, to the coefficient of thermal expansion of the further material in the boundary region of a bond.

Simply having the knowledge from one or both of the Horner et al and Kuniya et al references that the thermal expansion properties of one or more materials *can* be manipulated does not constitute sufficient evidence under 35 U.S.C. §103(a) to render obvious the specific manipulation described in amended claims 1 and 3, nor the goal of such a manipulation to equalize the thermal expansion properties.

Simply having the knowledge that thermal expansion properties of a fiber-reinforced material can be manipulated by orientation of the fibers does not necessarily suggest that a reason for doing so would be to achieve the aforementioned equalization with another material in a boundary region of a bond. Conversely, if one starts from the assumption that in the bond region it would be desirable to have such matching or equalized thermal expansion properties, there are many ways that materials could be selected or manipulated to achieve such matching. Only the present Applicant has had the insight to combine both of these factors to arrive at the subject matter of independent claims 1 and 3.

The Federal Circuit stated in *In re Lee* 227 F.3d 1338, 61 U.S.P.Q. 2d 1430 (Fed. Cir. 2002):

"The factual inquiry whether to combine references must be thorough and searching. ...It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with."

Similarly, quoting *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 U.S.P.Q. 2d 1225, 1232 (Fed. Cir. 1998), the Federal Circuit in *Brown &*

*Williamson Tobacco Court v. Philip Morris, Inc.*, 229 F.3d 1120, 1124-1125, 56 U.S.P.Q. 2d 1456, 1459 (Fed. Cir. 2000) stated:

[A] showing of a suggestion, teaching or motivation to combine the prior art references is an 'essential component of an obviousness holding'.

In *In re Dembiczak*, 175 F.3d 994,999, 50 U.S.P.Q. 2d 1614, 1617 (Fed. Cir. 1999) the Federal Circuit stated:

Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.

Consistently, in *In re Rouffet*, 149 F.3d 1350, 1359, 47 U.S.P.Q. 2d 1453, 1459 (Fed. Cir. 1998), the Federal Circuit stated:

[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill in the art that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.

In *Winner International Royalty Corp. v. Wang*, 200 F.3d 1340, 1348-1349, 53 U.S.P.Q. 2d 1580, 1586 (Fed. Cir. 2000), the Federal Circuit stated:

Although a reference need not expressly teach that the disclosure contained therein should be combined with another, ... the showing of combinability, in whatever form, must nevertheless be clear and particular.

Lastly, in *Crown Operations International, Ltd. v. Solutia, Inc.*, 289 F.3d 1367, 1376, 62 U.S.P.Q. 2d 1917 (Fed. Cir. 2002), the Federal Circuit stated:

There must be a teaching or suggestion within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, to select particular elements, and to combine them as combined by the inventor.

Applicant respectfully submits that the Examiner has simply cited disparate teachings from the Horner et al and Kuniya et al references, but has not satisfied the aforementioned rigorous of an entry standards that the Federal Circuit requires for substantiating a proper rejection under 35 U.S.C. §103(a).

Support for the changes made in claims 1 and 3 is present in the specification as originally filed in the paragraph bridging pages 8 and 9 of the present specification, and the following paragraph on page 9.

Applicant therefore respectfully submits that neither of claims 1 and 2 would have been obvious to a person of ordinary skill in the field of bonding fiber-reinforced materials with another material, based on the teachings of Horner et al and Kuniya et al, under the provisions of 35 U.S.C. §103(a).

As to independent claim 3, Applicant notes that the Horner et al reference, at column 5, line 56, discloses the use of materials of the type described in that reference in a rotating x-ray anode, and therefore Applicant does not consider the Petter et al reference as adding anything further to the teachings of the Horner et al reference. For the reasons noted above, Applicant submits that the combination of Horner et al and Kuniya et al does not render the subject matter of claim 1, which is also embodied in claim 3, as being obvious, and therefore the addition of the Petter et al reference to the combined teachings of Horner et al and Kuniya et al does not alter that conclusion. Claims 3-10, therefore, would not have been obvious to a person of ordinary skill in the field of anode design under the provisions of 35 U.S.C. §103(a) based on the teachings of those references.

All claims of the application are submitted to be patentable over the teachings of the above references, taken singly or in combination. Early consideration of the application is therefore respectfully requested.

Submitted by,



(Reg. 28,982)

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